

Sampling and Testing Guide-Minimum Frequency

Matls. IM 204
Appendix H (US) Units

STRUCTURAL CONCRETE, REINFORCEMENT, FOUNDATIONS & SUBSTRUCTURES, CONCRETE STRUCTURES, CONCRETE FLOORS, AND CONCRETE BOX, ARCH AND CIRCULAR CULVERTS

April 15, 2003
Supersedes October 2, 2001

[Sections 2403, 2404, 2405, 2406, 2412, & 2415](#)

MATERIAL OR CONSTRUCTION ITEM	TESTS	METHOD OF ACCEPTANCE AND RELATED IMs	QC/ACCEPTANCE S&T					ASSURANCE, CORRELATION AND VERIFICATION S&T						REMARKS ➡➡
			SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	REPORT	S&T TYPE	SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	REPORT	
SOURCE INSPECTION														
Aggregate-Fine (4110)		AS 209												
Aggregate-Coarse (4115)		AS 209												
Granular Backfill (4133)		AS 209												
Portland Cement (4101)	Quality	AS 401												
Fly Ash (4108)	Quality	AS 491.17												
Mixing Water (4102)	Quality		RCE	➡➡ 1/project	1 L	CTRL	731							Not required for potable water from Municipal Supply
GGBFS (Ground Granulated Blast Furnace Slag)	Quality	AS 491.14												
Air Entraining Admixture	Quality	AB 403												
Retarding Admixture	Quality	AB 403												
Water reducing Admixture	Quality	AB 403												
Curing Compound (4105)	Lab Tested	AB 405 ➡➡	DME	1/lot	1 L	CTRL								Bridge Barrier Rails AASHTO, M148, Cert. by Manufacturer
AS-Approved Source AB-Approved Brand ASD-Approved Shop Drawing S&T-Sampling & Testing		Cert A-Type A Certification Cert C-Type C Certification Cert D-Type D Certification			RCE-Resident Construction Engineer/Project Engineer DME-District Materials Engineer CTRL-Central Materials Office CONTR-Contractor				ASSUR-Independent Assurance VERIF-Verification CORR-Correlation MON-Monitor					

Verification/Assurance samples not required when mix quantity is less than 50 cu. yd.

Note: When the Project Engineer does the acceptance gradation testing, the assurance sample is to be split with the Project Engineer. This split sample is for correlation purposes and, if it is not a routine lot sample, should not be used for determining specification compliance of a lot. However, any non-compliant test result is to be resolved.

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			SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	REPORT	S&T TYPE	SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	REPORT	
SOURCE INSPECTION														
Pre-formed Joint Sealer (4136)	Lab-Tested	AB 436												
Reinforcing Steel Bars (4151)	Quality	AS 451												
Steel Pile (4167)	Quality	467												
Concrete Pile (4166)	Quality	AS 570												
Timber Pile (4165)	Quality	➡ 462		Each Shipment										Rpt. or Cert by Independent Insp. Agency
Timber & (4162) Lumber (4163)		➡ 462		Each Shipment										Rpt. or Cert by Independent Insp. Agency
Concrete Anchors	Quality	AB 453.09												
Epoxy Grout	Quality	AB 491.11												
Concrete Sealer	Quality	AB 491.12												
Subdrain Pipe (4143)	Quality	AS 443, 448												
Neoprene Bearing Pads (4195)		AS 495.03												
Bronze Bearing Plates (4190.03)		AS D/Cert A												
AS-Approved Source AB-Approved Brand ASD-Approved Shop Drawing S&T-Sampling & Testing		Cert A-Type A Certification Cert C-Type C Certification Cert D-Type D Certification			RCE-Resident Construction Engineer/Project Engineer DME-District Materials Engineer CTRL-Central Materials Office CONTR-Contractor				ASSUR-Independent Assurance VERIF-Verification CORR-Correlation MON-Monitor					

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			SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	REPORT	S&T TYPE	SAMPLE BY	FREQ.	SAMPL SIZE	TEST BY		REPORT
SOURCE INSPECTION														
Steel Masonry Plate (4152)		AS Drawing/Cert A												
Precast Units (2407)	Quality	AS 570												
Anchor Bolts (lighting, signing, handrail) (4153)	Lab Tested	ASD												
Structural Steel (4152)	Quality	➡➡ Cert A												Monitor Sample According to plans or other instructions
Aluminum Bridge Rail & Anchor Assembly		ASD Cert B												
Conduit (Electrical) (4185.1)	Lab Tested		DME	1/ size	2' with coupling	CTRL								
Bentonite		AS Cert D												
Flowable Mortar	Lab Tested ➡➡	Approved Trial Mix 525, 375												Tested by DME
AS-Approved Source AB-Approved Brand ASD-Approved Shop Drawing S&T-Sampling & Testing		Cert A-Type A Certification Cert C-Type C Certification Cert D-Type D Certification			RCE-Resident Construction Engineer/Project Engineer DME-District Materials Engineer CTRL-Central Materials Office CONTR-Contractor				ASSUR-Independent Assurance VERIF-Verification CORR-Correlation MON-Monitor					

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			SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	REPORT	S&T TYPE	SAMPLE BY	FREQ.	SAMPL E SIZE	TEST BY	REPORT	
PLANT INSPECTION														
Aggregate- Fine (4110)	Gradation	302, 306 336	CONTR	3/lot	IM 301	CONTR	830211	ASSUR CORR	DME CONTR	1/1000 cy➡➡ 1 st day +10%	IM 301 IM 301	DME RCE		System Approach Applicable
	Moisture	➡➡ 308, 528	CONTR	1/lot	1000 gm	CONTR	830211							See IM 528 if Moisture Probe is used
	Sp. Gr.	307	CONTR	IM 528	1000 gm	CONTR	830211							
	Quality	AS 209												
Aggregate- Coarse (4115)	Gradation	302, 306 336	CONTR	3/lot	IM 301	CONTR	830211	ASSUR CORR	DME CONTR	➡➡ 1/1000 CY 1 st day+10%	IM 301 IM 301	DME RCE		System Approach Applicable
	Moisture	308, 528	CONTR	1/lot	2000gm	CONTR	830211							
	Sp. Gr.	307	CONTR	IM 528	2000gm	CONTR	830211							
	Quality	AS 209						V	DME	1/1000 cy	50 lb	CTRL		
Portland Cement	w/c ratio	528	CONTR	1/pour		CONTR	830211							
	Quality	AS Cert D					830211	V	DME	1/1000 cy	15 lb	CTRL		
AS-Approved Source AB-Approved Brand ASD-Approved Shop Drawing S&T-Sampling & Testing		Cert A-Type A Certification Cert C-Type C Certification Cert D-Type D Certification			RCE-Resident Construction Engineer/Project Engineer DME-District Materials Engineer CTRL-Central Materials Office CONTR-Contractor					ASSUR-Independent Assurance VERIF-Verification CORR-Correlation MON-Monitor				

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				SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	REPORT	S&T TYPE	SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	REPORT	
PLANT INSPECTION															
Fly Ash	Quality	AS	Cert		Ea Load			830211							
GGBFS(Ground Granulated Blast Furnace Slag)	Quality	AS	Cert		Ea Load			830211	V	DME	1/1000 cy	15 lb	CTRL		
Air-Entraining Admixture (4103)		AB	403	RCE	1/lot➡➡	0.5 L	CTRL								Sample lots not previously reported or as required by DME
Retarding Admixture		AB	403	RCE	1/lot➡➡	0.5 L	CTRL								
Water Reducing Admixture (4103)		AB	403	RCE	1/lot➡➡	0.5 L	CTRL								
GRADE INSPECTION															
Plastic Concrete	Air Content	316, 327		RCE	1/30 cy➡➡		RCE	830211	ASSUR	DME	1/1000 cy		DME		DME may adjust
	Slump	317, 327		RCE	1/30 cy ➡➡		RCE	830211	ASSUR	DME	1/1000 cy		Witness Only		DME may adjust
	Beams	316, 327, 328		RCE	2/placement ➡➡		RCE	830211							As per 2403.18 & 2403.18
	Cylinders									DME	➡➡ 3/project		DME		Primary Projects Only (Information only)
AS-Approved Source		Cert A-Type A Certification				RCE-Resident Construction Engineer				ASSUR-Independent Assurance					
AB-Approved Brand		Cert C-Type C Certification				DME-District Materials Engineer				VERIF-Verification					
ASD-Approved Shop Drawing		Cert D-Type D Certification				CTRL-Central Materials Office				CORR-Correlation					
S&T-Sampling & Testing						CONTR-Contractor				MON-Monitor					

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				SAMPLE BY	FREQ.	SAMPLE SIZE	TES BY	REPORT	S&T TYPE	SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	REPORT	
GRADE INSPECTION															
Reinforcing Steel (4151)	Quality	AS	Cert A		Each Shipment			Field Book	V	DME	IM 451	6 ft	CTRL		
Reinforcing Steel Epoxy Coated (4151)	Quality	AS	Cert A		Each Shipment			Field Book	V ➡	DME	1 of largest bar in deck	6 ft	CTRL		Will be acceptance tested for coating
Steel Pile (4167)	Quality	AS	Cert A		Each Heat			Field Book		DME	IM 467		CTRL		Monitor by CTRL Materials
Timber Pile (4165)	Quality	Cert D	462						MON						Test report by Independent Lab
Anchor Bolts (lighting, signing, handrail)	Lab Tested	ASD		DME	➡ 1/project	1 bolt w/nut & washer	CTRL								Sample only if not source inspected
Steel Masonry Plates (4152)		ASD	Cert A		Each Shipment			Field Book							Approved by Materials Department
Bronze Bearing Plates (4190.03)	Lab Tested			DME	➡ 1/project	1 only	CTRL								Sample only if not source inspected
Neoprene Bearing Pads (4199)		AS	495.03		Each Shipment			820905							
Alum. Bridge Rail & Anchor Assembly		ASD			Each Shipment			Field Book							Approved By Materials Dept.
Drains (Std Steel Pipe)(as per plan)	Dimensions Galvanized	ASD	Visual 332	DME	1/project		DME	Test Report							
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			SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	REPORT	S&T TYPE	SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	REPORT	
GRADE INSPECTION														
Timber (4162) & Lumber (4163)	Quality	Cert D 4162		Each Shipment										
Subdrain Pipe (4143)	Quality	AS Cert D 443, 448		Each Shipment										
Flowable Mortar (2506) ➡➡	Flow Test	375	RCE	As needed for Project Control		RCE	830211							Mix Design approval by DME
Bentonite	Flow Test	Visual 375				RCE								
Smoothness (2317)	Profilometer	Cert. Test Report 341	CONTR	Each Project	Each Wheelpath	CONTR	821301	CORR	DME	10%				
AS-Approved Source AB-Approved Brand ASD-Approved Shop Drawing S&T-Sampling & Testing		Cert A-Type A Certification Cert B-Type C Certification Cert C-Type D Certification			RCE-Resident Construction Engineer/Project Engineer DME-District Materials Engineer CTRL-Central Materials Office CONTR-Contractor				ASSUR-Independent Assurance VERIF-Verification CORR-Correlation MON-Monitor					

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